



Energy Technologies Area

Lawrence Berkeley National Laboratory

**Getting the Most Out of Grid Modernization:
*Value-Added Electricity Services: New Roles for
Utilities and Third-Party Providers***

**National Governors Association - Energy Innovation Summit
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Future Electric Utility Regulation Series

- A series of reports from Berkeley Lab taps leading thinkers to grapple with complex regulatory issues for electricity
- Unique multi-perspective approach highlights different views on the future of electric utility regulation and business models and achieving a reliable, affordable, and flexible power system to inform ongoing discussion and debate
- Funded by U.S. Department of Energy's Grid Modernization Initiative
 - Office of Electricity Delivery and Energy Reliability
 - Office of Energy Efficiency and Renewable Energy
- *See Extra Slides*
 - 8 reports so far, 9th report underway (today's topic), more to come
 - Expert advisory group provides guidance and review
 - Berkeley Lab also provides technical assistance to states in this area — and on other topics

Reports, webinar slides and recordings at feur.lbl.gov



Grid modernization: New value-added services, regulatory approaches and business models

- **Value proposition** of modernizing electric distribution grids rests in part on using the control and communications capabilities of new energy generation, storage, delivery, and consumption technologies to offer a broad range of value-added electricity services to retail electricity customers,* such as:
 - Energy management services for homes and businesses
 - Integrated services for distributed energy resources (DERs) — energy efficiency, demand response, distributed generation and energy storage
 - Electric vehicle-related services — charging, fleet management, storage
 - Advanced distributed generation systems and microgrids
 - DER aggregation and market participation
- “[A]dapting the existing regulatory system to give load-serving entities the opportunity to create **sustainable business models** while incorporating emerging technologies that provide value-added energy services to customers and the nation”*



*DOE (2015), *Grid Modernization Multi-Year Program Plan* at 17 and 99.

Value-Added Electricity Services: New Roles for Utilities and Third-Party Providers

Report underway with three perspectives:

- *Utilities:* Institute for Electric Innovation (IEI)
- *Third-party providers:* Advanced Energy Economy (AEE)
- *Consumers:* National Assn. of State Utility Consumer Advocates (NASUCA)

Questions addressed:

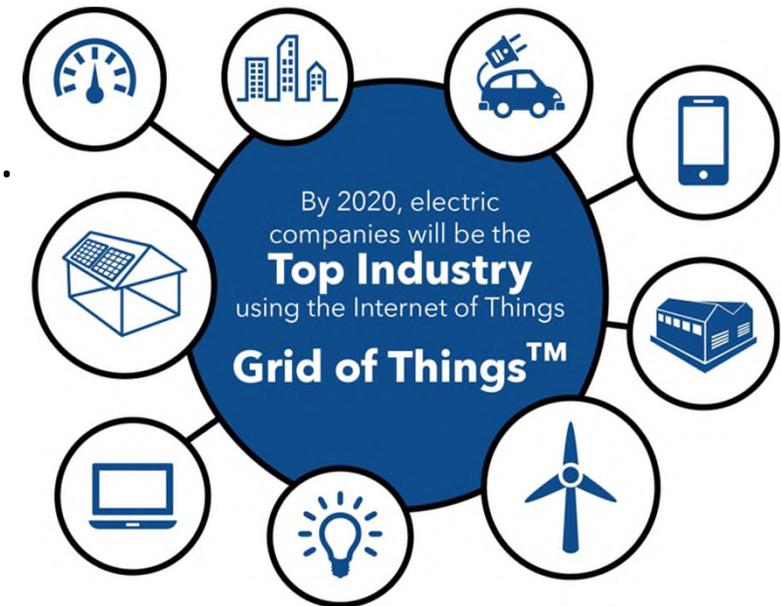
- What new value-added services does grid modernization enable, and ***what are the appropriate roles for utilities and third-party service providers?***
- Should utilities compete with third-party providers of new value-added services, or provide new platforms and procurement mechanisms to enable them?
- ***What policy and regulatory changes may be needed in the face of increasing competition for electricity services from third-party providers?***
- How should regulators address utility costs for new value-added services?
- What policy and regulatory approaches best balance promoting innovation with consumer protection?

➤ **Public webinar Nov. 6th – register at FEUR.lbl.gov**



Roles: Utilities vs. third parties

- **IEI:** Electric companies should be able to offer value-added services directly to customers, in partnership with technology companies, or both.
 - Best positioned to grow market
 - Have ability, willingness and mandate to serve all customers, regardless of income, location or class
 - Can optimize services: integration and targeting resources for specific locations
 - Utility deployment at scale = lower cost



Institute for Electric Innovation

- **AEE:** Regulated utilities should not be competing directly with 3rd parties in providing value-added services readily provided by the competitive market.
 - Services that can be competitive (do not exhibit monopoly characteristics) should be competitive for greatest customer benefits in long run
 - Competitive market should deliver services if they are based on technology deployed on customer side of meter (subject to specific exceptions)
 - Policies should build infrastructure to leverage competitive markets

- **NASUCA**

- Generally, most NASUCA members believe utilities should participate in providing potential competitive offerings, with certain regulations in place.*
 - Utilities may be able to provide lower cost value-added services (but at potential greater risk to consumers — e.g., premature write-downs, conversion to liabilities).
 - Regulated utilities have state oversight; 3rd party providers may not have similar (or any) regulations.
- Utilities could act as system planners that build and maintain infrastructure to enable a platform for value-added services offered by 3rd parties — e.g., connecting buyers and sellers, or acting as an independent distribution system operator.

**Not all NASUCA members agree that utilities should be allowed to compete with 3rd parties in providing value-added services. For example, in restructured states, some consumer advocates argue that utilities should not compete because they should not be allowed to grow rate base by entering into new businesses. Also, expanding services a utility relies on for revenue may place risks of new technologies on consumers, reduce competition to drive down cost and create innovation, and lead to subsidies from non-participants.*

Policy and regulatory changes needed

- **IEI**
 - Rules to facilitate 3rd party engagement and level playing field for all providers
 - Accurate & transparent price signals that separately price distinct services: (1) energy grid, (2) electricity supply and (3) value-added
 - Customers benefiting from value-added services pay
 - Provide access to services, set performance floor, reinforce consumer protections, promote innovation and minimize barriers to entry for providers
- **AEE**
 - Rules to maintain strong competition to ensure innovation
 - Financial incentives for utilities to facilitate collaboration with 3rd party providers and give utilities more options for revenue and earnings as they evolve away from traditional cost-of-service model based on capital investment
 - In pricing any value-added services offered by regulated utilities, account for use of resources that customers pay for under basic service, and ensure the utility does not subsidize value-added services or earn outsized profits on them

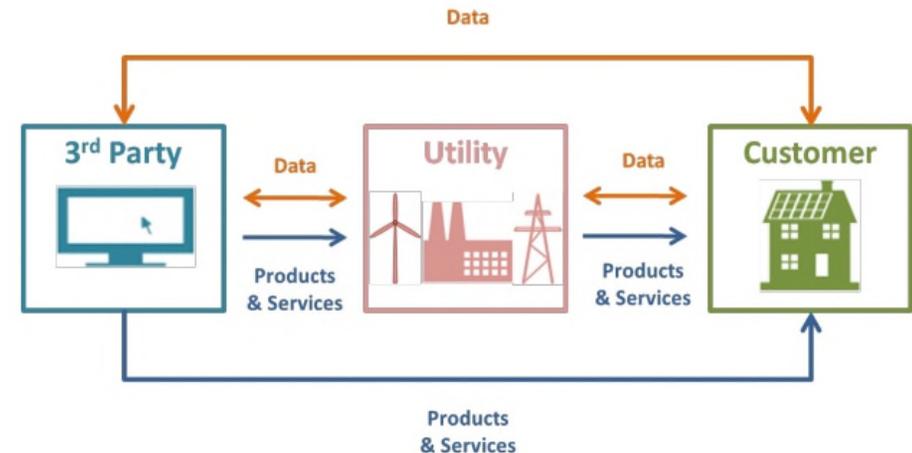


Policy and regulatory changes needed (cont.)

- **NASUCA**

- Hold providers accountable for benefits they claim for services
 - e.g., risks, penalties and disallowances for utilities if their service offerings don't perform as promised
- Marketing flexibility* for utilities to help keep consumers connected to the grid and contributing to fixed costs
- Strong, transparent transaction rules for non-regulated utility affiliates
- 3rd party access to consumer data, with privacy protections
- Consumer protection for new offerings (e.g., marketing, privacy)
- Uniform industry standards
- Avoid prematurely locking ratepayers into certain technological paths, and avoid stranded costs and assets due to technological obsolescence
- Effective & fair competition for services whenever applicable
- Cost allocation and rate design key, whether utilities provide value-added services or a platform for them

**Flexibility for utilities for rates and services with certain attributes — e.g., optional value-added services — with price floors to discourage predation and cross-subsidization.*



Source: Navigant Consulting

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Extra Slides

1. *Distributed Energy Resources, Industry Structure and Regulatory Responses*
2. *Distribution Systems in a High Distributed Energy Resources Future: Planning, Market Design, Operation and Oversight*
3. *Performance-Based Regulation in a High Distributed Energy Resources Future*
4. *Distribution System Pricing With Distributed Energy Resources*
5. *Recovery of Utility Fixed Costs: Utility, Consumer, Environmental and Economist Perspectives*
6. *The Future of Electricity Resource Planning*
7. *The Future of Centrally-Organized Wholesale Electricity Markets*
8. *Regulatory Incentives and Disincentives for Utility Investments in Grid Modernization*
9. *Value-Added Electricity Services: New Roles for Utilities and Third-Party Providers – Available early November*

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Future Electric Utility Regulation Advisory Group



- Commissioner Lorraine Akiba, Hawaii Public Utilities Commission
- Janice Beecher, Institute of Public Utilities, Michigan State University
- Doug Benevento, Xcel Energy
- Ashley Brown, Harvard Electricity Policy Group
- Stephen Caldwell, National Grid
- Paula Carmody, Maryland Office of People's Counsel
- Ralph Cavanagh, Natural Resources Defense Council
- Steve Corneli, consultant
- Tim Duff, Duke Energy
- Peter Fox-Penner, Boston University Questrom School of Business
- Scott Hempling, attorney
- Val Jensen, Commonwealth Edison
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- Chair Nancy Lange, Minnesota Public Utilities Commission
- Lori Lybolt, Consolidated Edison
- Sergej Mahnovski, Edison International
- Kris Mayes, Arizona State University College of Law/Utility of the Future Center
- Jay Morrison, National Rural Electric Cooperative Association
- Delia Patterson, American Public Power Association
- Commissioner Carla Peterman, California Public Utilities Commission
- Sonny Popowsky, Former consumer advocate of Pennsylvania
- Karl Rábago, Pace Energy & Climate Center, Pace University School of Law
- Rich Sedano, Regulatory Assistance Project

Technical assistance for states

- Berkeley Lab's Electricity Markets and Policy Group provides independent and unbiased technical assistance to state utility regulatory commissions, state energy offices, tribes and regional entities in these areas:
 - Energy efficiency (e.g., financing, EM&V, utility programs, behavior-based approaches, cost-effectiveness, administrative options, program planning and design, cost recovery)
 - Demand response (e.g., time-varying pricing), smart grid and grid modernization
 - Utility regulation and business models (e.g., financial impacts to utility and utility customers)
 - Renewable energy resources
 - Transmission and reliability, resource planning
- DOE's Solar Energy Technologies Office, in partnership with Berkeley Lab, Pacific Northwest National Laboratory and National Renewable Energy Laboratory, recently launched a three-year analytical support program for PUCs on topics related to distribution utility planning and regulatory, policy, programmatic and technology assessments of DERs. Recipients for year 1 will be selected this month (October 2017).